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RESPONSE UNDER 37 C.F.R. § 1.116
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EXAMINING GROUP 2174

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CERTIFICATE OF MAILING

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Signature: _____
Adrienne White

DECLARATION OF M. JASON THURMOND UNDER 37 C.F.R. § 1.132

I, M. Jason Thurmond, declare that:

1. I hold a B.S in Computer Engineering from Middle Tennessee State University, which I obtained in 1995.

2. I have worked for Square D for 13 years. In those 13 years, I have been involved in every aspect of Power Meter design. I began as a Power Meter firmware tester which allowed me to learn the use and application of these meters. Then, I developed firmware and hardware for several years which allowed me to fully understand Power Meter design and implementation concepts. I then moved into managing a team of engineers to provide leadership for the Power Metering business. In that role, I have been able to set business and product direction. I have been able to develop an acute sense of market requirements and drive product specification to

meet those needs. As a member of the IEC Technical Committee 85 standards group, I have been involved in co-authoring and influencing multiple documents for standardizing the Power Metering industry.

3. I am one of the co-inventors of the subject patent application. I am familiar with the claims of this application, including independent claims 1, 9, and 14. I am aware of the Office Action dated July 17, 2006, and the obviousness rejections presented in that Office Action. I wish to provide evidence that products sold by Square D embodying the claimed invention have been commercially successful. I also wish to provide evidence that one of ordinary skill in the power monitoring art at the time of the claimed invention would not have been motivated to consult any of the computer-related patents cited in the Office Action. I also wish to provide evidence of the advantages of the claimed invention that support my statements that those working in the power monitoring field.

4. Claims 1, 9, and 14 generally call for a remote metering display with a motion sensor for use in a power monitoring system and related methods. An important feature of these claims is a motion sensor that causes the display screen to be turned on without requiring physical interaction by the operator with the metering display.

5. I am aware that the Office Action cites a patent that discloses a circuit breaker with an integrated LCD display. I am also aware that the Office Action cites a number of other patents that pertain to personal computing, and that the Office Action asserts that it would have been obvious to a person of ordinary skill in the art to modify the circuit breaker with integrated LCD display to include disparate features of the PC-related patents to arrive at the invention claimed in the subject patent application. With this declaration, I wish to point out reasons why I disagree with this assertion.

6. By way of background, in a power monitoring environment, power meters are typically housed within switchgear in environments whose temperatures frequently exceed 100 degrees Fahrenheit. According to international standards (IEC, UL, CSA) written and agreed to by industry leaders, meters must be tested for very harsh and even caustic environmental conditions that include high temperatures, humidity, water, and continuous vibrations. These

environmental conditions stress electronics far more than other environments, such as those in which personal computers are present.

7. A typical power meter must withstand temperatures of up to 70 degrees Celsius (158 degrees Fahrenheit) and have a humidity rating of 5%-95% non-condensing at 40 degrees Celsius. Most personal computers are designed to withstand an environmental temperature no greater than 40 degrees Celsius (104 degrees Fahrenheit). The excessive heat conditions present in the environment in which power meters are placed significantly shortens the life of the electronic components within the power meters.

8. Advantages of the motion-activated remote-metering display of the invention expressed in claims 1, 9, and 14 include "(a) reduce the power consumption of the remote metering display from the power meter; (b) lengthen the total life span of the display screen which can degrade while in continuous operation; and (c) prevent 'burn in' of the display screen while in continuous operation over several hours." Page 3, lines 22-25. The total life span of the display screen is greatly exacerbated by the harsh environmental conditions in which meters are placed. This life span is further threatened when a display technology, such as vacuum fluorescent technology, is used that has a shorter life span compared to other display technologies, such as liquid crystal.

9. Switchgear environments monitor life-threatening levels of electrical voltage, current, and power, creating safety hazards for operators of switchgear equipment, especially power meters. The motion-activated metering display that is in a remote location from the power meter offers several advantages. First, physical touches by an operator on the switchgear panel or display panel area are minimized. Operators, especially untrained or novice operators, are naturally reluctant to touch the switchgear for fear of electrocution. It is desirable to minimize the physical interaction an operator has with the front panel of the switchgear for at least safety and psychological reasons. The motion-activation aspect to the present invention reduces the frequency and extent of human-machine interactions, reducing hazards to the health and safety of the operator. The operator simply approaches the remote metering display, without touching it, causing the display to turn on automatically, and can at a glance take readings of electrical characteristics being monitored by the power meter or obtain status information, for example.

Furthermore, the operator does not need to physically interact with or touch any portion of the front panel or the display screen area to turn off the display screen because it will be turned off automatically.

10. Second, the mean-time-to-failure for the display screen on the remote metering display is increased thanks to the motion sensor feature. When the display screen fails due to burn out, malfunction, or age, the operator must open the switchgear and become exposed to life-threatening levels of voltage. Alternately, the electrical circuits to which the power meter is coupled must be disabled, which can result in an entire plant or heavy equipment being shut down while the metering display is replaced. It is an extremely dangerous exercise to replace equipment within a switchgear. Prolonging the life of the display screen by turning it on when an operator draws near and turning it off when no operator is present significantly enhances the mean-time-to-failure rate for the display screen. The harsh switchgear environmental conditions including heat, humidity, and vibration, greatly stress the display screen. The motion-activated aspect of claims 1, 9, and 14 counteracts the natural tendency of the harsh environmental conditions to degrade the display screen by turning the display off when no operator is present and turning it on when an operator draws near.

11. These safety considerations are radically different from the considerations that motivate the use of screen savers or power-saving features in PC monitors. In addition, PCs do not operate in the caustic environments in which power meter equipment is located. Screen savers and power-saving modes in PC monitors may operate to conserve power or to prevent "burn in" effects, but these are quite different considerations from life-threatening health considerations that must be accounted for in switchgear environments. Safety is a paramount consideration in any design of power meter or power meter equipment because of the dangerous environment in which they are located. Operators are inches away from electrical current and power levels that could severely burn or even kill them. For this reason, switchgear equipment is subject to very stringent codes, standards, and regulations that are non-existent in the field of personal computing. For at least these reasons, I do not believe that a person of ordinary skill in the power monitoring art would be motivated to consult prior art in the field of personal computing to find inspiration for the missing features from the patent disclosing a circuit breaker with integrated LCD display and thereby arrive at the invention claimed in claims 1, 9, or 14.

12. For the last approximately six years, Square D has been selling and still sells throughout the world a circuit monitor under its PowerLogic® line of devices, which has a separate VFD (vacuum fluorescent display) display unit with a proximity sensor, as part numbers CMDVF and CMDVFMG. Attached to this declaration are selected pages from the Installation Manuals for the PowerLogic® Circuit Monitor Series 4000 and for the Series 3000 Circuit Monitor (the CMDVF is sold with the Series 3000 Circuit Monitor). Square D also sells a separate LCD display unit that does not include a proximity sensor as part numbers CMDLC and CMDLCMG. Thus, Square D sells two versions of remote metering displays that can be connected to the Series 3000 and 4000 PowerLogic® circuit monitors: one with a proximity sensor and one without.

13. While a circuit monitor can be purchased with a remote metering display, the display unit is not purchased without a circuit monitor (except in rare instances as a replacement). Sales of the remote metering display thus help to drive sales of the circuit monitors because it is an add-on that makes the circuit monitor a more attractive purchase. In other words, by its unconnected self, the remote metering display is not very useful. Like ink cartridges for use in inkjet printers, the metering displays help to pull-through sales of the monitoring equipment.

14. The Series 3000 and 4000 circuit monitors are considered "high-end" meters and command a higher price than other meters. The remote metering displays are marketed to be sold exclusively with these high-end circuit monitors to realize pull-through sales of the circuit monitors. Since the introduction of the remote VFD metering display with the proximity sensor, Square D's total revenue for its circuit monitors has increased dramatically by greater than 20% as a result of the willingness by customers to pay substantially more money to purchase the VFD display with proximity sensor than the LCD display sans proximity sensor.

15. Square D considers its CMDVF and CMDVFMG products to be very commercially successful because they have helped to dramatically increase sales of Square D's high-end circuit monitors. Customers are willing to pay nearly double to obtain a remote metering display with a proximity sensor than one without. These products have also helped to increase Square D's market share to 30% in the mid and high-end power meter market at a time

when there have been multiple entrants to the market. Sales of circuit monitors sold with remote metering displays that lack a proximity sensor have remained about the same as before the introduction of the CMDVF and CMDVFMG products, meaning that each sale of the CMDVF/MG unit represents an additional sale of a circuit monitor that Square D.

16. I further understand that dependent claims 2, 10, and 15 have been rejected for obviousness. These claims call for the display screen to be a vacuum fluorescent display (VFD). The VFD display is a highly visible display that is readable from a distance but has a shorter lifespan than LCD displays. The fluorescent technology produces a very bright output compared to other technologies such as liquid crystal. Though more desirable because of its enhanced long-range visibility (an important consideration when a proximity sensor is used because the viewer can be up to about 20 feet away from the display screen), VFD displays are also less desirable because their lifespan is significantly shorter than other types of displays, such as LCD or LED.

17. The selection of a VFD display, which is actually used in the CMDVF and CMDVFMG products sold by Square D, is not a mere design choice. Because safety is a very important consideration in switchgear environments, the VFD display produces a very bright output that, coupled with the proximity sensor, does not require that the operator physically interact with the front panel or even be that close to it. Left on for extended periods of time, the VFD display would very rapidly become inoperable in the caustic switchgear environment, plagued by high temperature, humidity, and continuous vibrations. As mentioned above, replacing switchgear equipment is a very hazardous exercise. The motion sensor in claims 1, 9, and 14 prolongs the life of the display screen, particularly the VFD display in claims 2, 10, and 15, which produces a bright output, increasing the mean-time-to-failure rate for the remote metering display unit.

18. In fact, I believe that a person of ordinary skill in the power monitoring field would actually be discouraged from selecting a VFD display for use with power monitoring equipment, despite the VFD's superior output brightness, because it would not last an acceptable length of time, and components in switchgear equipment must be robust enough to withstand the caustic environmental conditions. They are also relatively expensive compared to LCD displays.

It would therefore be counterintuitive to select a VFD display for use with power monitoring equipment. To my knowledge, Square D was the first company to introduce power monitoring equipment that includes a VFD display. It took the contribution of the motion sensor concept to make a VFD display a viable option for power monitoring equipment.

19. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: September 20, 2006

M. Jason Thurmond